

OCTOBER
1951

Floating elevators loading a vessel with a full cargo of grain off a Staten Island pier. There are seven of these floating elevators operating in New York harbor. Their hulls are 125 ft. long and loading towers, 90 ft. high. Each one can load 13,500 bus. of wheat per hour.

Grain

THE MAGAZINE OF PLANT MANAGEMENT AND OPERATION



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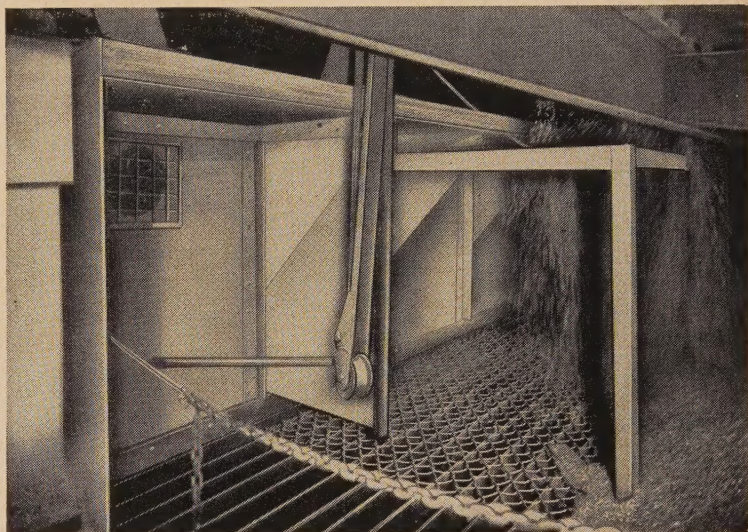
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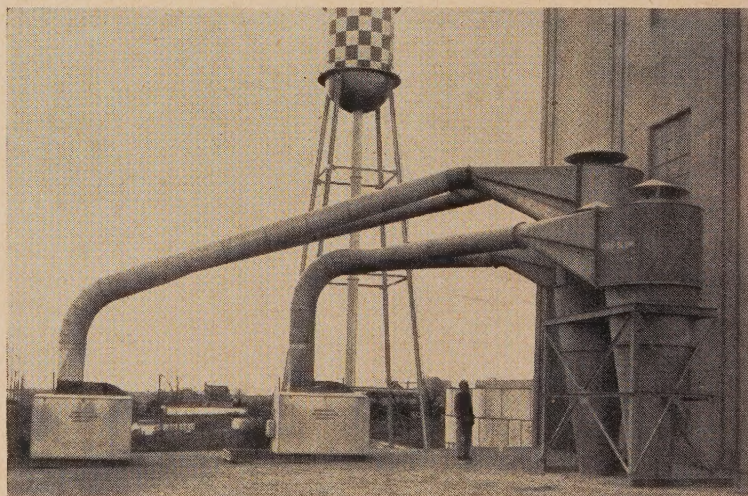
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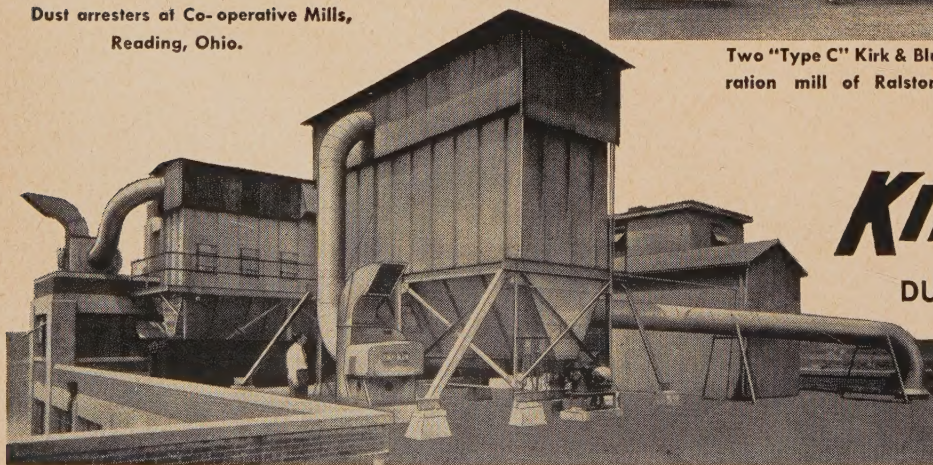


Corn unloading at a car dump. Exhaust connections as seen at upper left are located at short intervals the length of the station.



Two "Type C" Kirk & Blum collectors installed at the preparation mill of Ralston Purina, Wilmington, Delaware.

Dust arresters at Co-operative Mills,
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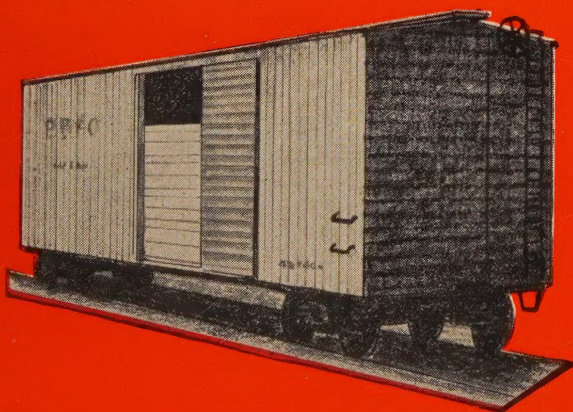
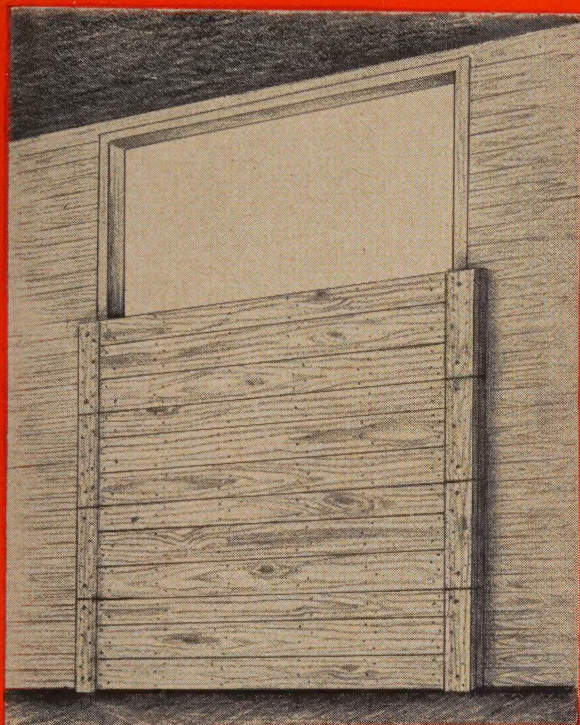


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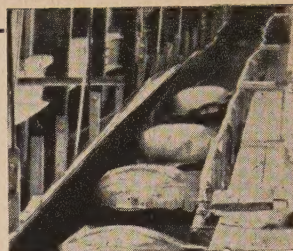
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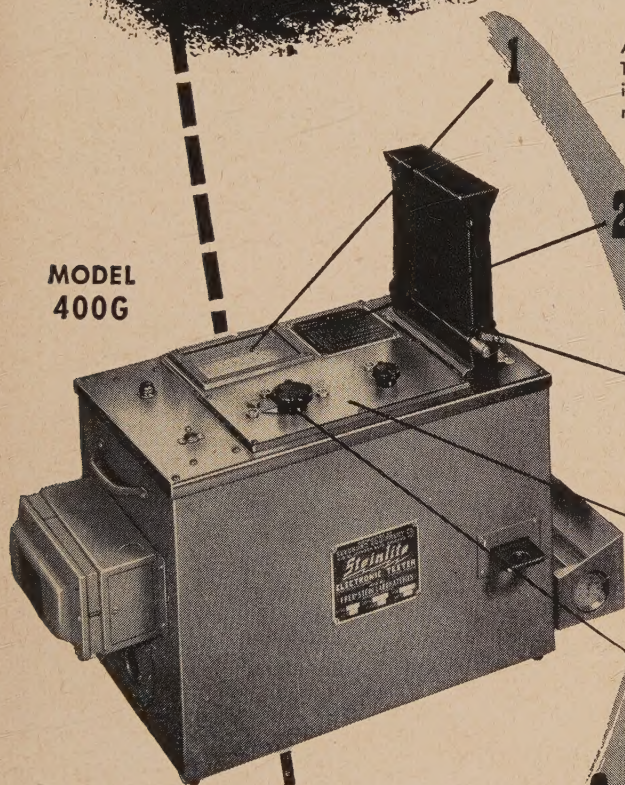
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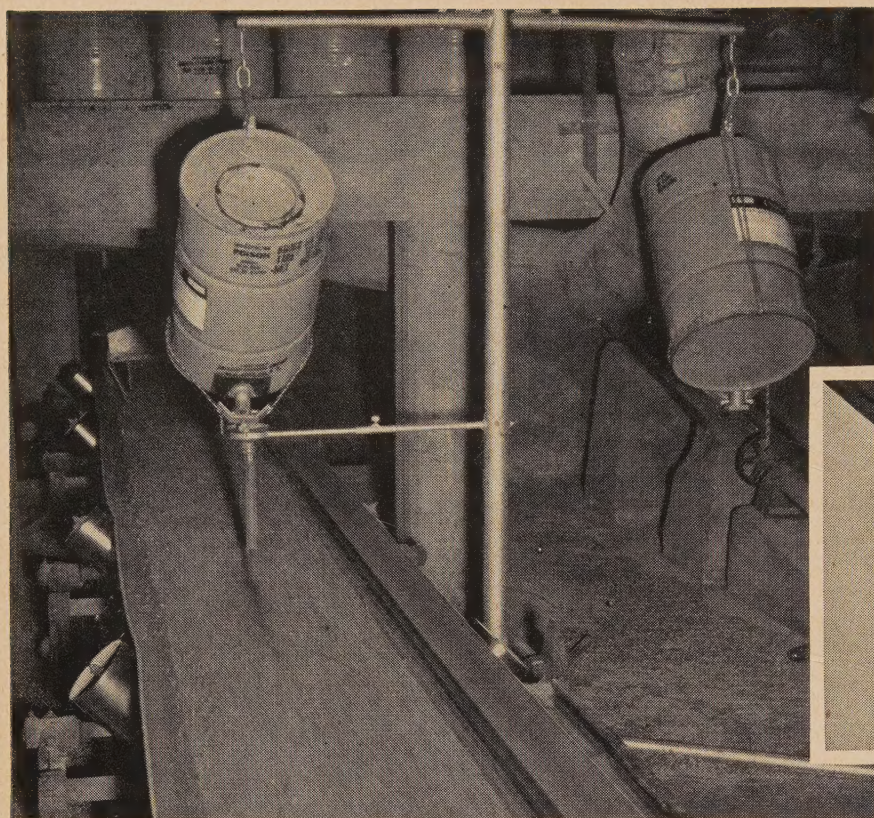
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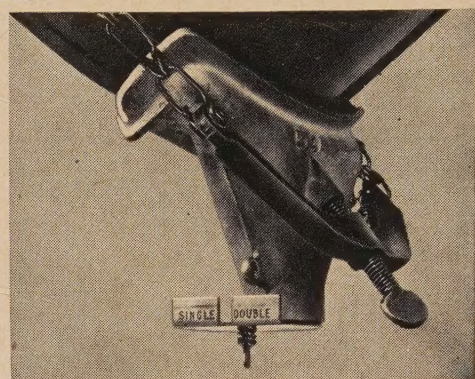
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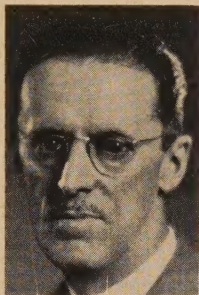
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DUST CONTROL

In Receiving and Shipping Grain

By A. B. OSGOOD
The Day Co., Minneapolis

NOT so many years ago, during our travels around the different parts of the country, trying to sell a few dust collecting systems, many operators and owners told us: "We'd like to have dust control, but we can't put it in because the state weights won't permit." Actually there were several areas in the country 20 years ago where the weighmasters were quite shy of any dust collecting system connected to the elevator before grain passed the scale.



A. B. Osgood

I don't think there is any question any longer that dust control can be installed on the receiving belts, legs, etc., without taking any weight out of the incoming grain. The dust control system for any elevator starts at the trap shed and immediately after the grain door is pushed out of the car, permitting the grain to flow into the hopper.

Essential for Clean Operation

In some cases this operation is quite essential to maintaining clean operating conditions around the plant. The dust that comes from the hopper in unloading grain from cars into the pit, is often very objectionable not so much perhaps from the standpoint of the elevator itself, but from that of neighbors, adjacent mills or other buildings.

It may be interesting to point out about 90 or 95% of the dust that comes from the unloading operation is dust that is blown out of the pit by the grain falling from the car door into the pit. This displaces air intake and causes a sweep of air up the sides, thus picking up dust that has settled on the sides of the pit from the last load of grain that was dumped. This applies whether it's a car dumper or a more common method of the shovel operating unloading.

Special Unit Control

The method of controlling the dust at this point calls for a special unit, or an individual unit fan system, providing suction on that hopper below

the grading. Then, instead of the air being swept up the sides of the pit and out into the atmosphere above, it is entrained in the fan system and goes through the collector. The heavier dust (whatever amount of dust that is heavy enough to separate by the type of collector used) is piped back into the pit. In that way no weight is taken out of the grain.

As a matter of fact, I think the weight would be a little in favor of the system with the suction applied than otherwise, because the dust that blows away down the track when there isn't suction on the pit, is collected and put back into the grain out of which it came.

Receiving Grain Connection

The next step is connecting up to the receiving belt, if there is a belt, and the receiving boot-elevator boot. This suction is applied to pick up the light dust only. We don't try to take any more than the floating dust, the dust that would otherwise get into the atmosphere. In order to safeguard against any heavier grain particles, or heavier foreign matter, going away into the dust system, these points are trapped to return any heavy material either into the stream on the belt or into the leg boot.

Following through with the elevator operation, the next point is up at the head flow where the collector discharges to the garner, and from the garner into the material.

Direct Suction Eliminated

A quarter century ago it was common practice to apply direct suction to the elevator head and garner, but that was eliminated in practically all phases a number of years ago in favor of the present system. This, when properly applied, can be very effective in removing the excess dust-laden air and without carrying away a lot of heavy dust.

This, however, does call for a little care in planning and arranging the vents on the leg head. The ventilator is usually applied not so much for allowing dust-laden air to escape at that point, as to provide a means for escape of any minor explosion that might appear in the leg. If the garner is properly vented, there shouldn't be much of any air discharged through the ventilator at the leg head.

With the amount of air that is forced into the garner, along with the grain that is being elevated, sometimes a pretty strong draft of air is created by the action of the grain leaving the elevator cups that project through the open air in the spout. This calls for a little careful consideration on the size of vents and the location.

If the location of the vent is such that the air comes too close to the grain stream (in some cases I've seen it where it's actually drawn through the stream of grain going into the garner) altogether too much heavy material can be exhausted to the outside. But if in the vent connection to the garner, the air has a chance to escape without going through the grain stream, and the ventilator stack is of sufficient size so that the velocity will carry only the light floating dust, some very good results will be obtained.

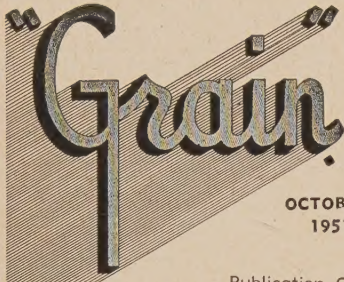
Air Return to Hopper

The scale is usually vented back to the garner and indirectly vented to the outside through the garner vent. There isn't any particular problem there providing the vent is of sufficient size to allow the displaced air in the scale hopper return to the garner without too much velocity.

However, inspectors have found some cases where even with these gravity vents there is loss due to wind velocities on the outside. This tends to produce more suction more draft on the ventilator, even where the weights are protected by the gravity vents.

We have found that this can be overcome by providing a door at the connection into the top of the garner which can be left partially open. Or it can be arranged with a slide to break the direct connection so that the ventilator draws air either from the garner or from the open area of the head floor, to compensate for those changes in atmospheric conditions which tend to make a roof ventilator draw stronger one way than another.

This pretty much covers the dust collecting as applied to the receiving operations up to the scale. The shipping end sometimes is provided suction out of the car door. In this case it's usually done by a system that provides suction on the pit when they are receiving and, if as accurate



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weights as possible want to be maintained, then the dust will have to be collected and put in the car.

The dust collecting even in this case does not affect the weights existing without it, because that dust is picked up whether it is on the receiving, or the shipping, by taking the dust-laden air from the top of the car door, has already left the grain before the dust collecting system gets hold of it.—*An address before the Terminal Grain Weighmasters Assn., Memphis, Sept. 10.*

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- No. 991 — Walter J. Charnley, Puritan Mfg. Co., Omaha, Nebr.
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No. 994 — E. C. Long, Harry E. Surface Co., Kansas City, Mo.

HAPPY BIRTHDAY

We extend our sincere greetings to the following whose birthdays occur in October and November.

- Oct. 6—Ernest O. Ohman, Osborne-McMillan Elevator Co., Minneapolis.
Oct. 7—David K. Milligan, Port of New York Authority, New York, N. Y.
Oct. 12—O. Albin Halberg, Pillsbury Mills, Inc., Springfield, Ill.
Oct. 13—Robert Ranney, Ralston Purina Co., Minneapolis, Minn.
Oct. 19 — J. Cameron Perry, Fort William Elevator Co., Ltd., Ft. William, Ont.
Oct. 23—Walter J. Suever, Delphos Grain & Milling Co., Delphos, Ohio.
Oct. 24—Fred T. Melberg, W. D. Allen Mfg. Co., Chicago, Ill.
Oct. 26—Fred W. Gallehugh, Kansas Grain Co., Kansas City, Mo.
Oct. 28—Clarence C. Bach, Archer-Daniels-Midland Co., Minneapolis, Minn.
Oct. 31—E. J. Raether, Farmers Union Grain Terminal Assn., St. Paul, Minn.
Nov. 7—Frank A. Theis, Simonds-Shields-Theis Grain Co., Kansas City, Mo.
Nov. 10—Smith L. Champlin, Archer-Daniels-Midland Co., Minneapolis, Minn.
Nov. 11—Henry J. Anderson, Bunge Corp., Minneapolis, Minn.
Nov. 14—J. Bruce Winfield, Canadian Pacific Railway Elev., Port McNicoll, Ont.
Nov. 15—Henry Green, Pillsbury Mills, Inc., Clinton, Ia.
Nov. 18—Ed. P. Escher, Screw Conveyor Corp., Hammond, Ind.
Nov. 22—Dean M. Clark, "GRAIN" Magazine, Chicago, Ill.
Nov. 25—Robert M. Lare, Butler-Welsh Grain Co., Nebraska City, Nebr.
Nov. 25—Roy F. Harp, Wolcott & Lincoln Grain Co., Kansas City, Kans.
Nov 26—Paul Naehner, B. F. Gump Co., Chicago, Ill.
- ## ACTIVE SOGES CHAPTERS
- Minnesota — Meets first Tuesday of each month.
Omaha — Meets second Tuesday of each month.
Kansas City — Meets third Tuesday of each month.
Buffalo — Meets third Thursday of each month.
Chicago — Meets monthly — alternating first Monday and third Tuesday.
Pacific Northwest — Meets quarterly.

Pneumatic Material Handling in Grain Processing Plants

By HOWARD WALDRON

Sprout, Waldron & Co., Muncy, Pa.

ALMOST from the beginning of civilization, the use of air has been a boon to grain processors. Centuries before the birth of Christ, Biblical history reveals that grains trampled out on the threshing floor, presumably by animals, was separated from the chaff by winnowing or tossing the combined grain and chaff as gleaned from the threshing floor from trays or baskets into the air, the air currents carrying away the lighter materials and the good solid grains, heavier in density, falling to the ground to be reclaimed.

It is logical to believe this crude method of grain cleaning, using the wind as a separating agent, existed through the Roman era, a time when slaves chained to a bar slowly turned the mighty mill stones that ground the grain into meal for the Roman emperors and their favored people.

As civilization advanced, so did the use of air in cereal processing. Witness the windmills of Normandy and the delta country of Holland, of England, following the invasion of the Norman conqueror — huge sail-like arms slowly turning in the wind, the central hub of the turning sails connected by a crude but ingenious system of wooden shafts and gears to the millstone on which the grain was ground.

The Advance of Air

From these early beginnings the use of air in cereal processing has steadily advanced, the modern grain cleaner or separator with its combination of screens and aspirating air legs having replaced winnowing in the wind and its successor, the hand operated farm type fanning mill.

The use of air for bulk materials handling of cereal grains is fairly recent and has only become popular within the last 10 years, when car loading fans were developed, using high speed air, and spouting the grain into the air stream directly in front of the fan discharge. This use of air precludes the necessity of hand trimming the car and saves many man hours of arduous labor.

The same system of air loading is now in use in the loading of grain cargoes, where large high speed fans literally shoot the grain into the hold up to the very deck beams, resulting in the labor saving of a score of cargo trimmers and allowing for at least a quarter of increased cargo capacity.

The advent of the hammer mill and its attached fan resulted in the

use of air to transport ground grains and cereal grasses. Attrition mills also were equipped with separate high speed fans, through which the ground grain passes and is elevated to a collector from which it is discharged to its ultimate destination.

This method, still in general use today, I believe to be both inefficient and wasteful — inefficient as it requires an excessive volume of air to move a pound of material, and wasteful as the air balance to the collector design and size is out of proportion which results in a considerable percentage of the fine ground material escaping out the collector exhaust.

I believe the most modern and most efficient use of air in material handling of cereal grains and ground cereal products is the recently developed vacuum or the combination of pneumatics and vacuum, which we in my own organization term "Pneu-Vac."

Elevating and Transporting Feed Ingredients

This system was designed and developed about seven years ago and was first used in a large feed mill in New England to elevate bulk feed ingredients from a car and transport them to bulk storage bins. Due to the required location of the bulk car and the fact that no space was available for a bucket elevator and conveyors, it was decided to experiment with a new type of air system using a fan at the discharge of the collector and operating the system under 100% vacuum.

The capacity required was 20,000 lbs. per hour, the installation location requiring a 40-ft. horizontal bottom carry, an 80-ft. lift, and a 20-ft. horizontal carry at the top. An 8-in. air line was used, and a 42-in. long cone collector, sealed at the bottom of the cone by a 10-in. diameter rotary valve seal, the fan attached to the air discharge of the collector direct connected to a 20 hp 3500 rpm. motor.

The bulk feed was unloaded from the car to a dump sink by power shovel, the sink being of special design, the top grate being at car floor level, and with a variable speed driven conveyor located in the bottom, the intake of the air system opening just under the grate.

This system operated in a satisfactory manner from the start, eliminating any dust condition at the dump sink, and showing no evidence of dust loss at the fan discharge. It

has been operating consistently since installed to the complete satisfaction of the customer, and to the best of my knowledge with no replacement of worn parts whatsoever.

Replacing a Pressure System

Realizing that pressure systems were inefficient, wasteful, and required frequent replacement of fan impellers and casings, resulting in excessive replacement cost and shut-down time, it was decided to replace a conventional pneumatic pressure system — that is, with the fan at the inlet to the air system — with a Pneu-Vac installation.

The system we decided to replace was using a Buffalo Forge type, high speed fan, and was wearing out impellers to an extent that they had to be replaced every 3 months, at a cost of about \$35, and fan housing about once a year at about \$100. These replacement costs were in addition to installation labor and shut-down time.

This pressure system was equipped with a 15 hp., 3500 rpm. motor and was taking ground corn away from a 26-in. attrition mill powered with two 30 hp. motors.

The maximum capacity that the fan of the pressure system would handle was approximately 12,000 lbs. per hour.

In making the installation of the Pneu-Vac system, we used the same 15 hp. motor that was on the pressure system, installed a 42-in. collector, and attached the fan to the collector exhaust, and sealed the bottom of the cone with a rotary air lock feeder driven by a 1/3 hp. gear motor, and installed an 8-in. air line from the mill to the collector.

Using the same motor on the collector that had been previously used on the pressure system, this new installation was able to take the full capacity of the 60 hp. attrition mill which was about 16,000 lbs. per hour, and we were actually able to add a second mill — a 22-in., 25 hp. attrition mill — to the system, which added an additional 8000 lbs. per hour, or a combined capacity from both mills of 24,000 lbs., actually doubling the capacity of the pressure system replaced.

This replacement unit has been operating for about 6 years with no replacement except a worn elbow which was patched and a set of rubber blade tips on the rotary air lock feeder.

The question arises as to the reason

for the apparent power saving per pound of material handled in the suction or vacuum system over the conventional pressure system — the pressure system being defined as a pneumatic system with material entering at the eye of the fan and with air pressure in the system from the fan discharge into the collector.

To analyze the power saving, the following facts are to be considered:

In a pressure system, to bring the material being handled up to air speed in the manifold of approximately 60 miles per hr. (roughly 5000 ft. per min.) would require theoretically the same power as to elevate the material 110 ft. vertically. Actually the power required to bring the material up to speed would be somewhat more than the 110-ft. vertical lift equivalent as the transformation of energy from the air to the material is not 100% efficient and some loss results.

With material entering the fan and being accelerated to fan tip speed, assuming a conventional fan with a 16-in. impeller and operating at about 3500 rpm., the impetus given the feed would be equivalent to a lift of 960 ft. and to a speed of 166 miles per hr.

We may think, perhaps, that the material leaving the fan blade would go up the pipe to the collector, due to the speed given it by the fan impeller. Actually, however, all the energy is lost in the spinning of the feed in the fan housing proper.

The centrifugal force developed in a 20-in. diameter housing when leaving the fan at fan tip speed would develop a radial force against the housing of 2250 lbs. per lb. of feed handled, which force, multiplied by the coefficient of friction of the material on the housing, would consume all of the energy of the material contacting the 300 degree of travel, and the total effect is that actually the fan would have to use considerable of its generated air capacity to clear the feed from the housing.

Fan Design Modified

In addition, in a conventional pressure system the fan blades must be made heavy to resist wear, this also applying to the housing. The design of the fan must be modified to allow for close clearance between blade tip and housing so that the air compressed at this point will scour the housing and keep it clean. With these modifications, efficiency of the fan at best is but 50 to 55%.

With a fan designed for air only, as required for a suction or vacuum system, the blades can be shrouded on both sides and made for better balance and streamlining. Also, proper clearance between fan blade and housing can be provided to allow for recovery of the kinetic energy of the air leaving the fan tip, with an in-

crease of fan efficiency to approximately 65 to 75%.

Let's compare a pressure system with a Pneu-Vac system as to relative loss. In a pressure system the air brings the material to speed where it enters the fan at right angles, using all of the energy fed into it by the air and the fan impeller, bringing the material up to the high speed of the fan blades; consequently this energy is lost in the fan housing.

From the fan proper, up to the collector, both the pressure and the vacuum systems would have the same losses. At the discharge of the collector on the pressure system, the energy of the fast rotating spiral is simply lost out through the hood of the collector. In the vacuum or Pneu-Vac system, the air enters the top mounted fan rotating in a spiral in the same direction as the fan rotates, and consequently practically all of the energy of the moving air is recovered in the fan.

Air Material Ratios

The following values will give the air material ratios as presently used in the design of Pneu-Vac systems for various applications. The average value is approximately 3 lbs. of material to a pound of air handled which is equivalent to about $4\frac{1}{2}$ cu. ft. of air to a pound of material. The latest handbooks on air say (and I quote): "32 cu. ft. of air should be used to move one pound of material." We have definitely proven that the ratios can be considerably increased over these values.

For example, there's an installation in a large Eastern feed mill that is handling scratch grains at a capacity of 40,000 to 45,000 lbs. per hr. with a 40 ft. horizontal carry and a 60 ft. vertical lift, with several elbows in the air line.

In this installation, using a 25 hp., 3500 rpm. motor on the collector, the ratio is 7 lbs. of material to 1 lb. of air or slightly less than 2 cu. ft. of air per lb. of material.

Dust Collector Design

In a vacuum, the collector size can be considerably reduced in diameter over the pressure system as related to the air volume and the diameter of the air line pipe. These collectors are designed to a formula published by the "Mill Mutual Bulletin," with the top and bottom modified to suit the top mounted Pneu-Vac fan and the bottom rotating sealed valve feeder. The collecting efficiency seems to be somewhat improved by the reduction in diameter as mentioned previously, but the improvement has been nothing spectacular.

Simple in design for economical production, with the cylinder fabricated of 10-gauge and the cone of 16-gauge metal, they are found to be highly efficient in their ability to collect and hold fine ground mate-

rials. The cylinder being a true circle can readily be lined with abrasive resistant metal for extra wear resistance where required.

The fan, normally mounted on top of the collector, supported by a heavy 3/8-in. plate and with the impeller directly mounted on the shaft of a vertical motor, becomes an integral part of the collector unit, of medium and high static design, radial bladed, full shrouded, and of narrow width, and dynamically balanced for true, vibrationless operation. Designed for air handling only, they operate at the highest possible efficiency.

The rotary air lock feeder is a precision-built unit with a machine bored casing and a turned rotor, the clearance between the casing and rotor being approximately .002-in., this close tolerance and precision design assuring airtight operation which is absolutely necessary for efficient operation, as an air leak at this point breaks the vacuum, throwing the system out of balance, and causing a dusting condition at the fan exhaust.

Auxiliary Dust Collector

We are often asked, is an auxiliary dust collector required in a Pneu-Vac installation? That depends on the type of material to be handled, the installation location, and whether or not a closed system can be used.

If the Pneu-Vac system is installed where air is not required at the material inlet, it can be operated closed, that is, a return line can be used with the inclusion of a by-pass valve at the fan discharge or a filter tube located in the return line. The small air leakage in the system is dissipated through the by-pass valve or filter. Operating in a closed system, it is rarely necessary to provide a cloth filter even when handling a dusty material.

In any event, the filter can be of small size if considered necessary as only about 10% of the air handled need be discharged through the filter. When operating on granular materials such as coarse ground corn, no auxiliary collection is required.

I might say, however, that if auxiliary collection is considered to be necessary for complete 100% recovery of the material handled, the top mounted fan has sufficient reserve capacity to easily handle the added static load placed against it by the filter system, thus precluding the requirement of any booster fans.

Actually, most of the installations have been designed and sold without any auxiliary dust collection equipment as the efficiency is generally above 99%. For example, one installation in Canada was followed by a Dustex unit, and only 1 lb. of material was reclaimed per 2 tons of material handled. The material in this instance was fine ground oat hulls, the capacity 16,000 lbs. per hr., and

(Please turn to page 21)

New Stop for Automatic Grain Shovel

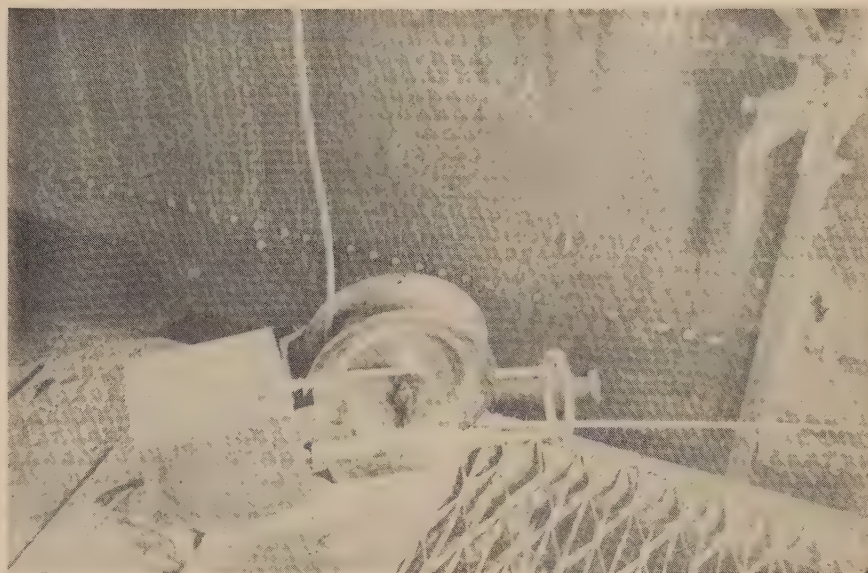
EVER SINCE the Clark-type automatic grain shovel became standard equipment for unloading box cars in grain elevators, operators have been faced with the problem of injuries and fatalities incurred in the operation of this shovel. Car dumps being too expensive for the average plant, most elevators have relied on supervision and safety education to reduce shovel machine accidents.

For many years, Cargill, Inc., has been seeking such a foolproof safety device; one which could be installed in the average elevator at a reasonable cost, and which would eliminate accidental injuries due to a shoveler's being caught in shovel cable loops.

This goal, it is reported, has at last been achieved. Such a foolproof automatic shovel stop has been developed and a pilot model is now in use at Cargill's Elevator T in Minneapolis. Over a period of 9 months, this stop has operated without failure. The Terminal Elevator Dept. of Cargill, Inc. is so satisfied that the safety stop is the answer to the automatic shovel injury problem, that plans are to equip every one of Cargill's Terminal Elevators with such devices.

As developed by J. V. Johnson, Cargill's electrical engineer, and L. H. Gretzer, Terminal Elevator safety director, the stop is relatively simple, consisting of the following equipment for each double shovel:

- 2—Explosion Proof Micro-Switch No. EXAR Ser No. 2 mounted on shovel sheaves,
- 1—Class 8738—QTG2—10 HP 3/60/



New device for stopping power shovel

440V Square D Combination starter with 50A Circuit breaker,
1—Class 9050—R.O.—9D—440/3/60
pneumatic timing relay,

2—Ring baffles—1 on each sheave,
which activates the micro switch.

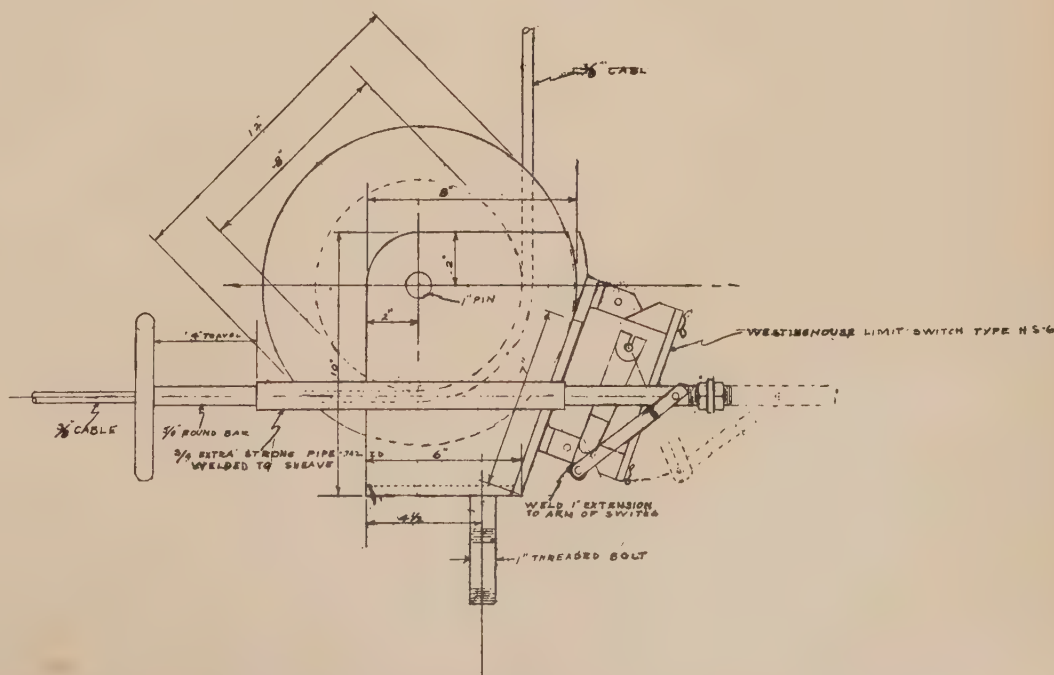
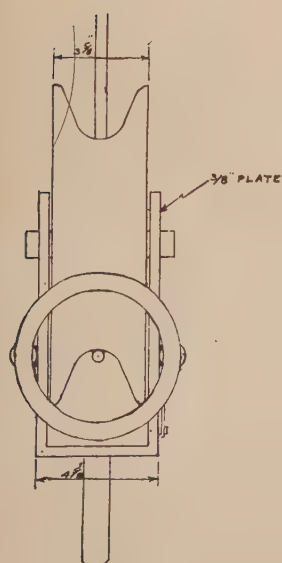
The operating sequence is as follows: Any object caught in the shovel cable will strike ring baffle which, in turn, activates limit switch which activates timing relay. The relay shuts off power momentarily, then energizes the reversing starter, plugging motor, causing shovel to stop immediately, and reverses shaft sufficiently to relieve tension of cable on object caught in the cable loop.

Mr. Gretzer has sent drawings cov-

ering construction and wiring also and a picture of the device to GRAIN which are reproduced here so that our readers may study them.

Cargill, Inc. feels that this safety device should be made available without restriction, to the grain trade. The cost of installation is about \$1050 for each double shovel rig. While some may think this rather expensive, one may point out that it is much cheaper than the loss of a man's leg.

Further information concerning this automatic stop can be secured by writing L. H. Gretzer, c/o Cargill, Inc., 200 Grain Exchange, Minneapolis, Minn.



Safety Sheave Mounting Arrangement

Preventing Loss of Grain in Transit

By DORSEY UNDERWOOD, Grain Specialist
Freight Claim Division, Assn. of American Railroads, Chicago

Payments on grain claims have increased rapidly in recent years; in 1939 there was paid out \$471,952; 1948—the peak year, \$7,298,049; 1949—\$5,749,119; and in 1950—\$4,729,762. It is true that the price of wheat went from 56 cents to \$2.29 a bushel or around 400 per cent, but the claim payments went up 1829 per cent.

Surprising as it may seem, the largest percentage of claims paid was on movements from terminal markets to terminal markets under official weights on clear record cars showing no exceptions.

Surveys in Terminal Markets

While conducting surveys in several terminal markets one of the most common bad practices I observed was too much speed. Not enough time was being allowed for the beam to come to rest, and in a great many cases weights were being taken while beam was in motion. If beam is not given sufficient time to come to rest for a few seconds, it is hard to determine if you have a leak in your scale or garner.

Some time ago I visited an interior elevator which was loading out. I asked the weighmaster to let his beam come to rest for a few seconds, which he did, and the beam immediately climbed to the top of the trig loop. We waited a few seconds more and took another balance, which showed 220 lbs. heavy due to a leaky garner. During a day's loading this could cost the shipper a considerable amount. This condition would also apply to inbound weights as well.

Another important practice which should be followed is to see that scales are in balance at all times and that the sensibility reciprocal is checked regularly.

One of the major problems confronting the carriers today is the failure on the part of the consignee to completely remove the entire lading from the car. This condition is being watched by the carriers and is being called to the attention of elevator superintendents with the idea in mind of keeping it down to a minimum.

The second largest percentage of loss [Based upon claims paid.—Ed.] is on country shipments to terminal markets. Next in importance is the loss caused by bad order cars, such as grain door leaks, leaky cars and rough cars from which it is impossible to properly remove all the lading.

Charges "Faking" Leaks

One of the most abused practices that has been observed in some markets is the manufacturing of leaks

and tight linings. We have found several cases of cars which showed no notation of any leak at time of checking prior to unloading, but after the car was weighed out short of billed weight, some form of leak notation was later made.

These "leaking" notations and notations as to "tight lining" should be made only after a careful inspection of the car to determine the cause for any shortage. A great number of cars have been checked after having been marked "tight lining" and the grain removed proved to be only a small percentage of the shortage claimed.

The carriers have been conducting a check-weighing program in various markets. Cars are weighed on railroad track scales just prior to placing at elevators for unloading, and after cars have been unloaded cars are light weighed, and the results are compared with the unloading weights.

Claims "Telescoping" Cars Common

An ever increasing problem the carriers are confronted with today is the mixing of one car with another. In every market at which this program has been conducted, we have found from one to four cars that have been mixed, showing cars unloaded in sequence with variations from 1,000 lbs. to 12,000 lbs. where one car would be short or over and the preceding or succeeding car over or short this approximate amount.

In most cases this is attributed to the human element in failing to give or heed proper signals, but may also be caused by leaky garnerers and pits. We have also found several cases where one weighmaster operates two scales and picked up the wrong scale ticket. In a great many cases this has caused an overage to one shipper and a shortage to another.

Too Many or Too Few Grain Doors

Another problem is insufficient amount of cooperage—as well as in some cases an excessive amount. Elevator superintendents and supervising weighmasters should see that cars are properly trimmed so as not to allow grain to spill over the cooperage. In case a car does not have a sufficient amount of cooperage, steps should be taken to see that enough is applied before cars leave the industry.

Excessive amount of cooperage, where sufficient amount of space is not provided on both sides of cars to allow samplers to enter, is bad practice. Samplers will knock off the top door which in a great many instances will loosen the next door causing a grain door to leak at door posts.

I could go on citing case after case of irregularities, both on the part of elevator operations and the carriers, but I think the main object of this meeting and of the carriers is to secure accurate weights, for the reputation of any market is based on good weights and we should all work together to retain that reputation.

The Association of American Railroads earnestly solicits your cooperation.—*Before meeting of Terminal Grain Weighmasters National Assn., at Memphis.*

CHICAGO SOGES CHAPTER OPENS NEW SEASON

Fifty people were present at the Chicago Area SOGES Chapter meeting held at Martin's, Chicago, on Sept. 17th. Harry Hanson, Past-President, The Glidden Co., introduced the new president, Dale Wilson of Northwest Malt & Grain Co., both in Chicago.

Dale immediately turned the meeting over to Russell Paarlberg, Farm Bureau Milling Co., Hammond, Ind. who proceeded to introduce the speaker of the evening, Walter Berger, President, American Feed Mfrs. Assn.

Mr. Berger gave a very interesting talk on the part grain and grain by-products play in the feed business, after which the American Feed Mfrs. Assn. film "The Growth of a Nation" was shown.

Lincoln Scott of Corn Products Refining Co. operated the projector, and as the sound track balked and refused to work, Mr. Berger filled in as narrator.

SMALL PLANT HOUSEKEEPING PAMPHLET

Emphasizing that good "housekeeping" in any manufacturing plant is good business, the Office of Small Business of the National Production Authority, U.S. Dept. of Commerce, today issued a two-page pamphlet which itemizes 69 points which should be checked periodically to maintain plant cleanliness, reduce accidents and increase productive efficiency.

The bulletin, one of a series of defense production aids designed to help small manufacturers, points out that a well-lighted, clean and orderly plant generally has fewer accidents, better employe morale and a good production record.

Free copies of "A Checklist for Small Plant Housekeeping" may be obtained from Printing Services, Dept. of Commerce, Washington 25, D. C., or from any Dept. of Commerce field office.



THE PRESIDENT'S CORNER

LIKE practically every other member of SOGES, I turn to the Honor Roll in each issue of GRAIN and note the progress being made in our membership drive. Needless to say, I'm gratified by the successful efforts of energetic present members to enlist new ones. Numerical strength is an essential for any association. No real accomplishment can be made without sufficient representation of an entire industry or calling to give the association standing and influence.

There is also the financial side to consider. There are certain fixed expenses without which your Society cannot effectively operate. Each new member secured helps our finances and gives us greater assurance that necessary projects may be carried on.

However, as I've touched upon previously, there are two types of members — the active and the pas-

sive. The former make the wheels go around. The latter just go along for a ride.

Most of our members are good salesmen, especially those whose names appear on the Honor Roll. My wholehearted praise goes to them for their fine work. At the same time, I'd like to suggest that when a prospect for membership is approached and given a good sales talk, that he also be indoctrinated with the principle that SOGES expects each member to get in and pitch. The members who are active get much more out of the Society than those who are merely "joiners."

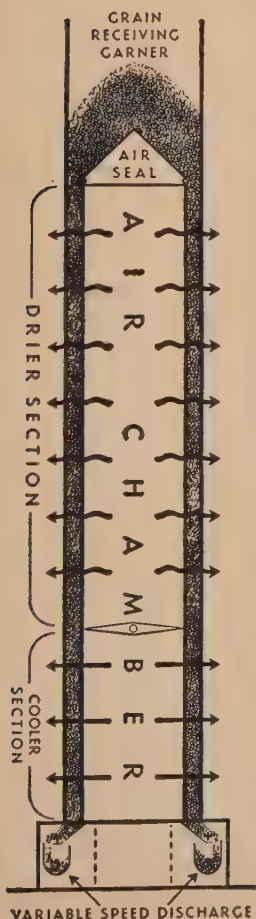
Don't overlook another angle. These new members bring a fresh outlook on things. Many of them could contribute new ideas for our activities. Sometimes, those of us who have gone through the long-

established routine of committee work, committee chairman, director and finally officer are perhaps lacking in perspective. We have been following tradition and custom too long. Maybe we've fallen somewhat into ruts and need the help of these new members to pull us out.

I'm sure that not only myself but all officers would welcome ideas. Possibly some won't be practical but there are many that might work. Any new approach to our problems is more likely to be offered by recent members than by older ones.

Let us all keep these things in our minds through the entire year: How can the Society be made more useful to me, to other members and to the entire industry? What new projects within our scope should be undertaken? Are our present committees functioning perfectly? Similar questions will doubtless occur to you and I hope will be transmitted to the officers with your constructive suggestions.

Perhaps the most valuable result of all education is the ability to make yourself do the thing you have to do, when it ought to be done, whether you like it or not; it is the first lesson that ought to be learned; and however early a man's training begins, it is probably the last lesson that he learns thoroughly.—Huxley.



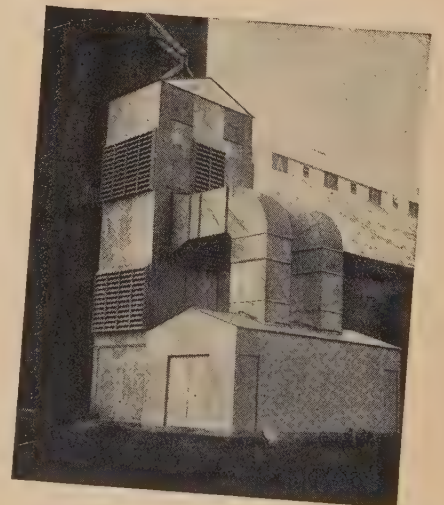
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Damp Grain Chemical Preservation Possibilities

By DR. MAX MILNER

Kansas Agri. Exp. Sta., Manhattan, Kan.

THE REALIZATION that fungi are the primary agencies causing deterioration in damp grain has prompted investigation of the utility of chemical preservatives to control grain spoilage. The utility of sulfanilamide and thiourea for suppressing mold growth in respiration studies with wheat already has been referred to. More than 100 organic compounds have been screened for effectiveness as mold inhibitors and several were assayed as respiratory inhibitors. The compounds 8-hydroxyquinoline sulfate and thiourea were shown to be excellent inhibitors of respiration in damp wheat, while p-aminobenzoic acid, a non-toxic metabolite, appeared also to be rather effective. Snow and Watts recommend the treatment of certain feed-stuffs with sulfa drugs to inhibit their spoilage.

Great many organic compounds have been evaluated as inhibitors of heating in stored flaxseed. Treatment of the seed with propylene glycol dipropionate and bischloromethyl xylene are useful to control

heating. Treatment of damp stored rice with acetic acid and sodium bisulfite was found to be effective in controlling the heating of that crop.

Inhibiting Changes in Damp Wheat

Several other chemical treatments have been investigated with reference to their ability in inhibiting changes in damp wheat which would affect its quality from the point of view of commercial grade and bread production purposes. Treatments applied included carbon tetrachloride, propylene oxide, a 1-1 mixture of carbon tetrachloride and propylene oxide, ethylene chlorohydrin, piperonyl cyclonene, and thiourea. All of these chemicals have been shown to be effective in reducing respiration and rate of fat acidity development in damp wheat. Stored samples were aerated periodically. As shown, all treatments reduced commercial damage as estimated by federal grain inspectors, in comparison to that suffered by a damp control sample.

Thiourea and the mixture of propylene oxide and carbon tetrachloride were the most effective in this regard. Flours milled from these wheats showed a marked tendency towards increased mixing time of the doughs. This characteristic was common to all such dough regardless of treatment.

Effect on Flour

When the flours milled from these wheats were baked after 16 weeks of storage, it was found that the material obtained from the damp samples regardless of treatment exhibited undesirable gray crumb color and musty odor. All treatments showed minor to considerable increases in specific volume of loaves in comparison to those from flours obtained from damp untreated control samples; in a few cases the specific volume of certain treated samples was greater than that of the undamaged dry wheat. An improving effect was evident in the case of the mixture of propylene oxide and carbon tetrachloride. Thiourea was de-

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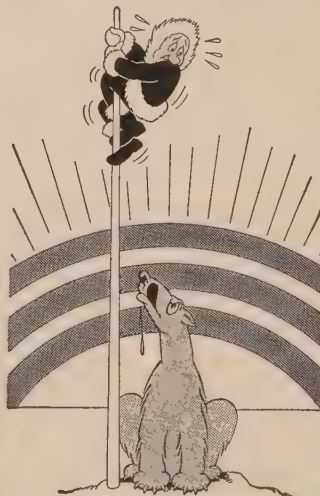
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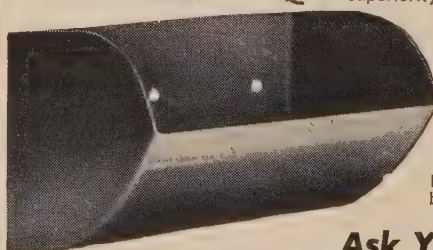
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leterious in this regard. A notable characteristic of the flours from all the damp samples was a marked decrease in response to the oxidizing improver, potassium bromate.

While these results are not entirely conclusive, they do indicate that further research into the use of preservative chemicals for inhibiting the spoilage of damp grain is to be encouraged.

Plants and People

SWALIN RESIGNS

Clifford Swalin has resigned as superintendent of the elevator of Farmers Grain Dealers Assn. of Iowa, Des Moines and is moving to Ontario, Calif. where he'll operate a poultry ranch. Art Henry will succeed him as superintendent at Des Moines.

BOADWAY CONVALESCENT

Norman Boadway, Supt., Collingwood (Ont.) Terminals, Ltd., paid the offices of GRAIN a visit recently. He reported that he is almost recovered from his 3-months' illness and is back on the job, though still "taking it easy."

MOVIE IN GRAIN BIN

A rather unusual stunt was pulled in Cargill's Electric Elevator at Buffalo on Aug. 10. A large flat bottom grain bin was empty, so a screen and projector were set up inside it and Cargill's movie "Pillars of Plenty" was shown to a highly interested audience. Empty 5-gal. insecticide cans were upended and used as seats. The event was so successful that it probably will be repeated with other films.

STRALEY PROMOTED

Friends of Herbert A. Straley, Supt., Port Authority Grain Terminal, Brooklyn, N. Y., will be glad to learn that he has recently been promoted to the position of Superintendent of the Port Authority's Port Newark Marine Terminal, Newark, N.J. At the same time, they'll be sorry to hear that his new position will take him outside of the grain sphere. He has been an active member of SOGES and is at present chairman of the Society's Safety Committee.

His membership in SOGES has been transferred to the new Superintendent of the Brooklyn grain terminal who is Edward J. Brazina.

KAPLAN IN CALIFORNIA

Mark Kaplan, formerly with Boston Woven Hose & Rubber Co., Chicago and an ex-member of SOGES, writes us a nice letter from California. Mark severed his connection with the above concern last June and

moved West to improve Mrs. Kaplan's health.

He is now engaged in fruit growing and would welcome hearing from his friends. His address is 124 Yerba Santa, Los Altos, Calif.

McHENRY RETIRES

On Oct. 1, Roland McHenry retired as president of General Mills Star Grain Div., Chicago, the division which furnishes Midwest and other company plants with grain supplies. Mr. McHenry, who is well known in the United States and Canadian milling organizations, was a grain trader for 45 years on that date.

He began his career at age 20 as

office messenger for a Chicago grain commission firm. In three years he progressed through the posts of clerk, bookkeeper, cashier and manager.

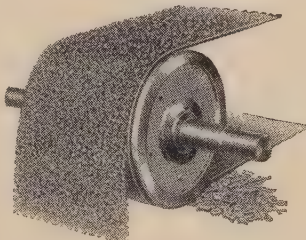
After five years, he moved to another grain company, and in 1918 he became partner in a third.

In 1921, he was made manager of domestic and export grain merchandising for Nye & Jenks, then top grain merchant in the field. Soon he became a vice president and director, remaining until the firm was dissolved in 1927.

He then assumed the managing directorship of Star Grain Company which was affiliated with Washburn Crosby Company, predecessor of General Mills. In 1943 he was elected

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PULLEY TYPE

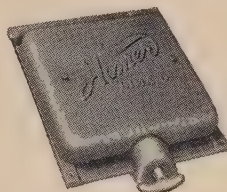
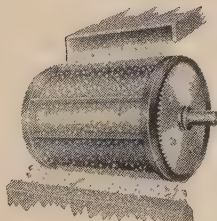


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Homer Plate Type Magnetic Separators are furnished in standard widths from 4" to 26", with single or triple air gaps as required. Two types are available: Hinged plate types for easy cleaning in restricted areas, or Hingeless plate types for open or easy to get at locations. Many special fabrications are available based on your own specifications.

Homer Magnetic Drum Type Separators are furnished for the removal of tramp iron from fine or pulverized products, (grain, feed, food, etc.). Homer Drum Type Separators can be incorporated into chutes, hoppers, screw or belt conveying machinery and are furnished in standard diameters of 12" to 30", with face widths from 4" to 60".



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president of Star Grain division of General Mills.

REPUBLIC TERMINAL ELEVATOR HAS ACCIDENT

The first lost-time accident in the Van Dusen Harrington Terminal division during 1951 occurred recently, when Mel Johnson of the Republic Terminal elevator in Minneapolis cut himself with a hand ax while enlarging a storm drain.

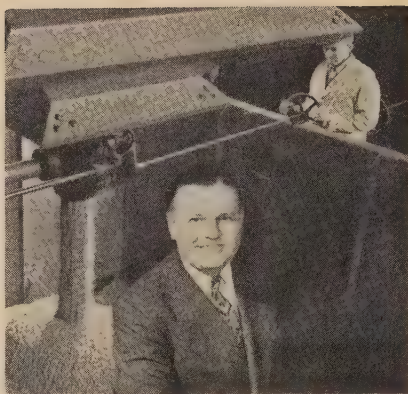
It was the first lost-time accident in the terminal properties since that at the Globe Terminal in Superior, Wis., November 21, and it broke the record of 620 days without an accident at the Republic terminal.

The blade of the ax apparently struck something hard when it was swung and glanced off to cut Johnson in the ankle.

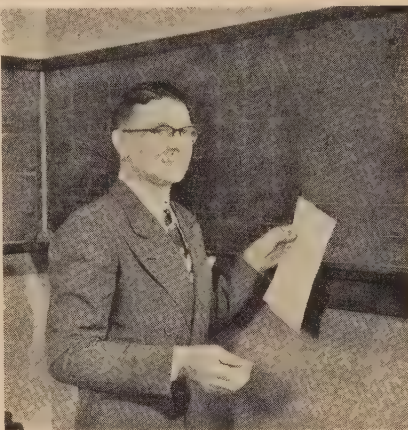
GEORGE J. MEYER BOOKLET

A handsome specimen of business publication has been issued by the George J. Meyer Malt & Grain Corporation, Buffalo, N.Y. It's a booklet with little text but voluminous artwork and illustrations. Two of the latter are reproduced here.

The company is headed by George M. Frauenheim. His brother, Edward Frauenheim, is secretary. The reader is taken from the barley fields through the plant, with heads of each depart-



Secy. Edward Frauenheim, Jr.



Plant Mgr. Henry Bowman

ment shown with artistic embellishment. The pictures of the malting process and the general layout deserve the highest praise. A little character "Kernel Malt" bobs in and out of the sparse text to enhance its charm. Get one of these books if you can. It's well-worth preserving.

SCHWILL CHAIRMAN DIES

Robert Mautz, chairman of the Board, Albert Schwill & Co., Maltsters, Chicago died on Sept. 16. One of the most active SOGES members, Lloyd Forsell is Superintendent of the Schwill plant.

NEW PILLSBURY DIRECTORS

Clyde Hendrix, who has spent his entire life in the feed business, the last 15 years in the Midwest, was among three new members elected to the board of directors of Pillsbury Mills at the company's annual stockholder meeting. Along with him, Paige E. Lehman and B. J. Greer also became members of the board.

Mr. Hendrix, who is 48, joined Pillsbury in 1942 as general sales manager of the feed section and was made division vice president in 1942, operating out of Clinton, Ia. Two years later he became division president and in 1950 was made a corporate vice-president.

Two months ago, at the request of

Perfectly Formed HELICOID SCREW CONVEYOR

It's "HAMMOND"
the Ultimate in DESIGN—
CONSTRUCTION and
PERFORMANCE

Experienced eyes can see the difference in the smooth, tapered flight surface, in the streamlined forged steel supporting lugs and in the break-proof welded "flight-to-pipe" mounting of HAMMOND Helicoid Conveyor.

Rigidity in construction insures positive concentricity, providing the highest possible smooth, vibrationless operation.



Wear-producing buckling and whipping that causes breaks in fittings, bearings and boxes, are eliminated.

Our engineering technique has answered the demand for needed improvements in conveyor production and that is why "HAMMOND" Helicoid best withstands the fatiguing strains of daily usage.

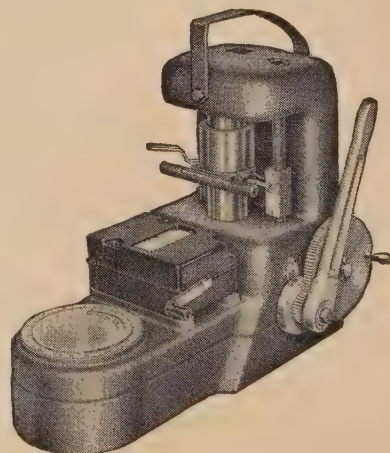
Complete Service

We are specialists in the manufacture of Elevator Buckets, Elevator Bucket Accessories, Screw Conveyor and Screw Conveyor Accessories. Investigate our latest developments for vertical, horizontal or inclined conveying. "Screw-Lift" — "Screw-Veyor" and "Screw-Flo."

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Only
MOISTURE
TESTER
THAT •



- Gives accurate, direct moisture percentage readings instantly on kiln dried and blended grain.
- Requires no separate temperature tests . . . a built-in thermometer automatically shows temperature.
- Operates by electricity, yet requires no electrical outlets or batteries.

Yes, the sensational

UNIVERSAL MOISTURE TESTER

is the only moisture tester that gives you these advanced and highly desirable features.

Available for a
10-DAY FREE TRIAL

Guaranteed
For
3 YEARS
No
Maintenance
Expense

BURROWS
EQUIPMENT COMPANY

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the company's president, Philip Pillsbury, Mr. Hendrix moved to Minneapolis.

Pillsbury Mills has formula feed plants at Atchison, Kan.; Centerville, Ia.; Clinton, Ia.; Colton, Calif.; Lima, Ohio; Los Angeles, Calif.; Louisville, Ky.; Minneapolis, Minn.; Nashville, Tenn.; Ogden, Utah; Sacramento and San Francisco, Calif. They have soybean mills at Clinton and Centerville.

Paige Lehman is vice president in charge of manufacturing. He joined Pillsbury in 1920 and in 1933 was appointed general superintendent. In 1946 he became vice-president of production. He succeeds his father, Max A. Lehman as a director.

The other new director, Ben J. Greer, is head of the Globe Mills Division of Pillsbury. He began as an inspector in the wheat selection department in 1926.

ALEXANDER TO DIRECT ROSSFORD FEED OPERATIONS

The appointment of F. M. Alexander as senior local executive for all General Mills operations at Rossford, Ohio was announced on Sept. 19. Mr. Alexander joined the company as a laborer and became packing and loading foreman at Kansas City. He was later transferred to Minneapolis where he did outstanding work in a similar position.

In May, 1945 he was made manager of the Larowe feed plant at Rossford which has recently been the center of a vast General Mills building program. Shortly after the first of the year construction was started on a new grain elevator, soybean processing plant and soybean oil refinery. The new plant will turn out more than 100,000 tons of soybean oil meal per year.

His appointment means he will continue as manager of the feed plant and also be coordinator for feed and soybean operations at Rossford, Perrin explained.

MILITARY PACKAGING GUIDE

This 36-page, two-color, pocket-size bulletin just issued outlines government packaging specifications which involve flexible protective barriers against weather, water, moisture, mildew, corrosion, etc. It presents very comprehensive information available on current Army, Navy and Air Force requirements in the simplest possible manner.

More than thirty "JAN," "AN," "MIL," "UU" and other specifications are mentioned and cross-indexed. Both methods and materials are covered with numerous illustrations of types of packaging and procedures for packing. For a free copy of Bulletin 36 M. G., use company letterhead and address Mehl Mfg. Co., 2057 Reading Road, Cincinnati 2, Ohio.

NEW ENTOMOLOGY RESEARCH DIVISION

A new research Division in the Bureau of Entomology and Plant Quarantine USDA has been established. It is the Division of Stored Product Insect Investigations. Randall Latta, longtime Bureau researcher on various methods of insect control has been designated acting leader of the new Division, by Avery S. Hoyt, chief of the Bureau. His first assistants will be R. T. Cotton, and Dr. Lyman S. Henderson, bureau authorities on the control of insects that affect stored products in homes and commercial establishments.

The average annual value of grain destroyed by insects has been estimated at \$1 billion. Much of this loss occurs after the grain is harvested and in farm storage.

Investigations concerning insects that affect stored products have been conducted in a number of the Bureau's research Divisions. The reorganization will permit better coordination of the research.

The problem of controlling insects that damage stored grains has been a matter of concern to this Bureau for many years. Great progress has been made within the past decade in this field of research under the guid-



PROTECTION

by the cylinder!

No Other Fumigant Offers All These Larvacide^(R) Advantages

LARVACIDE

- Kills Larvae and Egg Life
- Cuts Accident Risk — Easy to Detect
- Easy to Apply by Your Own Men
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- Kills Rodents without Carcass Nuisance
- No Fire or Explosion Hazard
- Automatic Application Available
- Conveniently Packaged (1 lb. bottles to 180 lb. Cylinders)
- Available in Principal Cities

Ask the men who know from long experience that Larvacide offers a thorough control program for long range planning. They use it — with confidence — for spot Machinery Treatment — General Fumigation; Grain Fumigation — Rodent Control; Vaults — Box Car Fumigation — to protect flour en route — wherever pests are a problem.

Send for full information today. See for yourself how Larvacide can provide effective pest control PLUS big economies.

ISCO SPRAY — Outstanding as both residual and contact spray in food plants.

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ance of Dr. R. T. Cotton, leader of the Bureau's Manhattan, Kans., laboratory, who will continue to direct this phase of the new Division's research.

GRAIN MOISTURE CHART

A revised conversion chart for use with the Tag-Heppenstall Grain Moisture Meter in determining moisture content of all soft red winter wheat and white wheat grown in Eastern areas is now available free of charge to all users of the instrument. Copies may be obtained by requesting Tag Chart 409 from the manufacturer of the instrument, the Tagliabue Instruments Division, Dept. 67, Weston Electrical Instrument Corporation, 614 Frelinghuysen Ave., Newark 5, N. J.

The result of USDA studies and comparisons of tests made by the

official air oven method with readings obtained from the TAG meter during the past 4 years, the revised chart incorporates changes deemed necessary and desirable for the soft red winter wheat now being grown. The same chart is also applicable to Eastern-grown white wheat. Showing slightly higher moisture results at the 14% level and above, the revised chart is now being used by licensed grain inspectors and grain inspection supervisors.

U. S. AGENCIES SPEED GROWTH

Members of Congress are studying the following data on the increase in the number of Federal employees in the last six years:

National Labor Relations Board, from 884 to 1,466 employees, 64% increase; Justice Department, 9,033

more employees, increase, 37%; Civil Service Commission, from 3,656 to 4,570 employees, increase, 29%; Commerce Department, 10,092 more employees, increase, 26%; Federal Security Agency, 6,024 more employees, increase, 12%; State Department, 2,765 more employees, increase, 11%.

ALL-PURPOSE ELEVATOR

The new model Burrows All-Purpose Elevator (shown below) has been designed for fast, convenient



Burrows All-Purpose Elevator

and economical handling of ear corn, shelled corn, small grain, round or square bales, bags and boxes.

It is equipped with Fafnir ball bearings to promote smoother operation and greater efficiency; a carrier of high strength angle iron mounted on 16" auto type wheels with roller bearings; a positive locking worm winch with extra strength airplane type cables; newly designed engine mount, corn screen and reinforced trough.

The elevator is available for immediate delivery, in lengths from 19 to 51 ft. For literature write Burrows Equipment Company, 1316-B Sherman Ave., Evanston, Ill.

OUT-OF-TOWN VISITORS

M. M. Darling, The Glidden Co., Indianapolis, Ind.
Ken P. Cochran, Corn States Hybrid Service, Des Moines, Iowa.
Frank J. Kohout, A. C. Horn Corporation, Minneapolis, Minn.
Norman Broadway, Collingwood Terminals, Ltd., Collingwood, Ont.
A. B. Osgood, The Day Co., Minneapolis, Minn.
Andor Kemeny, Toronto, Ont.
Ed. Josephson, Schreier Malting Co., Sheboygan, Wis.

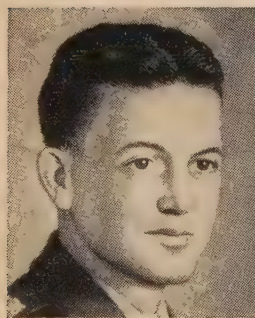
HERE'S JOB FOR SUPERMAN

A total of 232 different regulations, orders, supplemental regulations, ceiling price regulations, distribution regulations, and general overriding regulations have been issued so far by OPS and NPA under the defense control program, according to the New York Journal of Commerce.

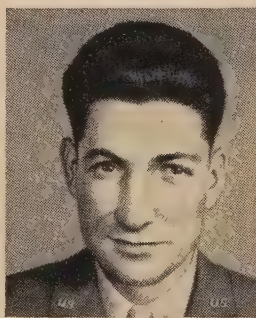
In addition, there have been thousands of amendments to these regulations. The list, compiled in the newspaper's booklet, "Controls Guide,"



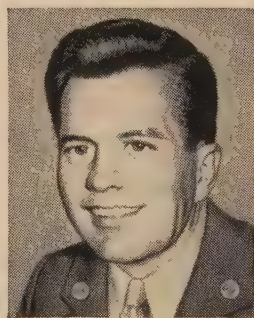
Medal of Honor



Sergeant Travis Watkins,
Gladewater, Tex.—Medal of Honor



Lieutenant Frederick Henry,
Clinton, Okla.—Medal of Honor



Sergeant Charles Turner,
Boston, Mass.—Medal of Honor

This is the season when you think of stars. The one over Bethlehem. The ones on Christmas trees.

But this year remember another star, too—the one on the Medal of Honor. And make a place in your heart for the brave, good men who've won it. Men who, oftener than not, made the final, greatest sacrifice—so that the stars on your Christmas tree, and the stars in your country's flag, might forever shine undimmed.

Right now—today—is the time to do something important for these men who died for you. You can, by helping to defend the country they defended so far "above and beyond the call of duty."

One of the best ways you can make defense your job, too, is to buy more... and more... and more United States Defense Bonds. For your bonds help strengthen America. And if you make this nation strong enough you'll create, and keep, the peace for which men died.

Buy Defense Bonds through the Payroll Savings Plan where you work or the Bond-A-Month Plan where you bank. Start today!

Peace is for the strong...Buy U.S. Defense Bonds



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shows how difficult it is to set up government controls over the complex American economy.

NEW BIN-LEVEL INDICATOR

A new, special model bin-level indicator which is claimed solves the problem of securing dependable level indication in large bins is announced by The Bin-Dicator Company, 13946-84 Kercheval, Detroit 15, Mich.

The new unit is designed for suspended installation from above and can therefore be located anywhere in the bin where there will be a free flow of material to and away from the diaphragm. This flexibility as to location permits its application to bins containing materials which tend to build up on the walls of the bin and to flow down through the central area only. Under these and similar conditions, indicators mounted on the bin wall couldn't function properly.

KIRK & BLUM MODERNIZES AND EXPANDS

The Kirk & Blum Mfg. Co., one of the nation's leading fabricators and erectors of dust-collecting and fume removal systems, announces completion of the primary phase of an extensive modernization of plant facilities.

From its start 44 years ago, in a storeroom of the historic St. Charles Hotel Bldg., 232 E. Third St., Cincinnati, Ohio, the company has figured prominently in the industrial development of the Queen City.

Through its founders, the late Sylvester W. Kirk and the late Richard J. Blum, who organized the firm to meet "the urgent need for cleaner air in various industrial plants where manufacturing processes cause air pollution," the company expanded rapidly, as industries came to know the need for dust and fume removal systems.

After only 7 years in business, the Messrs. Kirk and Blum found the need for more manufacturing space. They then built and occupied the now famous "laundry building" which is "bombarded" by home runs hit (chiefly by the opposition) over the left-field wall of Crosley Field, home of the Cincinnati "Reds."

As a corporation, formed in 1923 to permit key employees and executives to acquire stock in the business, the firm soon found need for more and more space. After several expansions the company bought the plant and eight-acre tract of the former Cincinnati Planer Co. in Cincinnati. In April, this year, the concern concluded its 7-month moving plan into the new structure.

The plant, which can accommodate further enlargement easily, is a one-floor brick structure that contains approximately 120,000 sq. ft. Facilities include an exterior and interior rail siding, overhead crane handling



Russell Maas (second from left) and Ed. Escher, Screw Conveyor Corporation, Hammond, Ind., have dinner at Moran's, New Orleans, with Mr. and Mrs. Chas. J. Winters.

systems throughout, and other features.

Known the world over for its products, Kirk & Blum manufactures steel products of all descriptions. It has press brakes that can bend and form sheet steel up to $\frac{3}{8}$ in. thickness and 17 ft. in length, electrical seam welders capable of joining two pieces of 12-gauge metal and forming presses that can exert 250 tons of pressure.

All products are custom made. Design, fabrication and installation of dust and fume collecting systems are done wholly by the concern for grain, metal-working, wood-working, chemical, tobacco and other industries. Other than dust and fume control systems, the company manufactures industrial drying and baking ovens, cabs for steam shovels, heat exchangers for oil burning furnaces, tanks for industrial purposes, joist forms for precast concrete, rear wheel

housings for trolley buses, power panels, machine tool bases and a host of other items.

The concern, which is now at 3120 Forrer St., is largely devoted to production of defense work at present, most of which is done through subcontracting. More than 300 men, whose average length of service exceeds 12½ years, are employed by the company.

Although the founders are now deceased, their plans are being carried out by Richard J. Blum, Jr., the son of one of the founders, who started to work for the company in 1933. In taking over the business in 1948, he was considered as one of the youngest presidents of any large concern in the Cincinnati area.

HIGH RATIO

The Armed Forces are now employing one civilian for every two men in uniform, according to Senator



Interior view of new plant of Kirk & Blum Mfg. Co., Cincinnati, Ohio

DON'T LET X

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FOR EFFECTIVE DUST AND GAS PROTECTION

ROBERTSON Explosion Ventilators

WILL

Remove the more explosive fine dust from the leg by continuous gravity action

WILL

Release pent-up gases and flames in case of an explosion

WILL

Minimize the possibility of a secondary explosion by continuously venting gases

ROBERTSON Ventilation Engineers

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Inspect your elevator and recommend proper sizes and number of ventilators to secure maximum protection at minimum expense.

Write Now for Details

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Farmers Bank Building
Pittsburgh, Pa.

Byrd of Virginia. At the peak of World War II, the ratio was one civilian for each five men in uniform. The Senator believes that the military effort would be strengthened if the military establishment saved half a billion dollars by reducing the number of civilians it employs.

EXPERT OFFERS INFLATION CURE

Over-expansion of bank credit is the basic cause of inflation, according to Dr. Harley L. Lutz, tax consultant to the National Association of Manufacturers.

Dr. Lutz said in a radio talk that the way to halt inflation is to let the Federal Reserve Board curb the private use of unnecessary credit, reduce unnecessary government spending, and increase taxes to the pay-as-we-go level. He recommended a manufacturers' uniform excise tax as the best method of increasing Federal revenue.

SUPERIOR SEPARATOR DIVIDES OPERATIONS

Because of the rapid growth of its grain separator and farm implement businesses, Superior Separator Company, Hopkins, Minnesota, has divided their operations into two separate company divisions.

The well-known "Superior" line of grain and seed processing ma-



Ira S. Willis



Geo. F. Schroeder

chinery will be marketed by the Superior Grain Separator Company. Ira Willis, who has been in charge of grain machinery sales since 1947, has been named general manager of the new company. George F. Schroeder succeeds him as sales manager.

Separate Divisions

The "Farmhand" line of materials-handling farm implements will be marketed by *The Farmhand Company*. Both companies will be identified as divisions of Superior Separator Company, Hopkins, as they are not corporate entities.

A new three-story office building, together with a new factory building for grain machinery production, is now being added to the firm's facilities at 121 Washington Avenue, So., Hopkins, Minn. Each division will have completely separate factory

and office quarters, as well as separate personnel.

Pattern for Future Growth

"This step is a logical result of our rapid growth during the past few years," Pres. Pierson states. "The segregation of our two businesses will result in greater operating efficiency. Also, it is expected that the new names will help build a closer identification of the company with the products it manufactures."

EXPLOSION-PROOF WINDOWS

Development of a window that will fold away harmlessly in an explosion is announced by Pittsburgh Plate Glass Co. It is a glass-plastic laminate which is said to eliminate virtually all danger of flying glass in blast areas.

The new "bomb window" will resist normal atmospheric pressures because of its design, Dr. J. Hervey Sherts, glass development director of the company, says.

When these pressures are exceeded by a bomb blast or other forces, the window will open automatically by folding about its edges, it is declared. This action releases pressure, prevents the window from being blown in, and reduces greatly the possibility of flying fragments, he said.

The new window has been tested and proved by the company's research division. An explosive force was used which exceeded the force of Hiroshima type atom bombs at a distance of a mile.

The window consists of three layers laminated into a single unit. The outer layer is a sheet of glass and the middle layer a partly segmented sheet of plastic. The inner layer consists of four triangular shaped pieces of glass.

The middle plastic layer extends beyond the glass edges and is bolted to the window frame. This permits the four inner glass segments to open like doors when the outer glass plate is broken.

The plastic layer will stretch, it is claimed, up to 400% of its unstressed length and return to within 1/2 of 1% without rupture. This prevents high pressures from building up which ordinarily would blow in an entire window, frame and all.

After an explosion of force sufficient to open the window, the four inner glass segments can be returned to position by simple methods, even by using a wad of chewing gum, until this section can be replaced.

The codfish lays a million eggs;

The helpful hen but one.

But the codfish doesn't cackle

To tell you what she's done.

And so we scorn the codfish coy,

While the helpful hen we prize,
Which indicates to thoughtful minds:

It pays to advertise.

PNEUMATIC GRAIN HANDLING

(Concluded from page 10)

the calculated efficiency using the reclaim from the Dustex as a basis of calculation about 99.975%.

As to horsepower requirement, using a normal 30 to 40 ft. lift with one elbow, the ratio would be approximately 1 hp. per 100 lbs. of material to be handled.

Losses in Elbows

Elbows in the line are the cause of highest efficiency losses and horse power requirements; in consequence, only long sweep elbows can be considered for air line installation, to reduce friction losses to a minimum.

A single elbow with a 4-ft. radius with air traveling at 5000 ft. per min. velocity will actually cause the same loss when handling grain at a coefficient of friction .3 as to lift the grain 96 ft. vertically; as a comparison, for flour with a higher coefficient of .45 the loss in a 4-ft. elbow would be equivalent to raising the same flour 145 vertically.

The centrifugal force on an elbow of 4-ft. radius, with an air velocity in the system of 5000 ft. per min. would be 55 lbs. per lb. of material handled.

The calculated loss of a straight horizontal carry would be practically the same as that of the vertical lift.

It is to be emphasized that a Pneumatic or vacuum system of material handling is not a package item. Each application must be considered as an individual problem, for while the formulas and descriptions that have been given are the result of research and practical experience gained in the installation of over 200 systems in the past 7 years, definite consideration must be given to the type and density of the material to be handled, the vertical lift and horizontal carry requirements, and the number of elbows required for directional flow of the product.—*Before the Pennsylvania Millers and Feed Dealers' Assn. at Harrisburg, Pa.*

Books Received

Steel Trails to Santa Fe. — By L. L. Waters. 13 chapters with appendices and reference sources. 500 pages. Bound in buckram. Published by the University of Kansas Press, Lawrence, Kans. Price \$4.00.

When the Atchison, Topeka & Santa Fe Railway System wanted a comprehensive study of the company along historical lines, officials requested the University of Kansas not only to act as sponsors of the work but to undertake its preparation. The University agreed and assigned L. L. Waters of the School of Business faculty to do the job. Mr. Waters was granted a leave of absence for this purpose dur-

ing the academic year 1942-43 and his manuscript was completed in the fall of 1943. World War II temporarily halted its publication plus the great growth of the Santa Fe during the following period. Now it has appeared and is a credit both to its author and the railway company.

The book starts at a time before the rails were laid, with wagon caravans going over the old Santa Fe Trail and the Gold Rush to California in '49. It discusses the political problems that delayed its start and then relates its construction. From those pioneer days, the history completely covers the work and progress of the railway down to 1950. An infinite number of sources were consulted and the records of the company were thrown open to the author. Although a work of this kind involves a great deal of statistics and factual material, Mr. Waters has succeeded admirably in working in sufficient human interest to take away any suspicion of dryness.

His presentation is as absorbing in places as a romance—as indeed it is, a romance based on truth. The only possible criticism is that the pictures are too limited. A book of this kind covering a century of great development is worthy of more illustrations, particularly from a historical standpoint.

MINNEAPOLIS CHAPTER SEES FILM

First meeting of the current fiscal year was held by Minneapolis SOGES chapter in Freddie's Cafe, Minneapolis, on Oct. 2. After dinner, a sound film "Bridging the Century" was presented by John S. Roebeling & Sons, with commentary by T. P. Supplee.

IN THE HOPPER

Minister (baptizing a baby)—"His name, please."

Mother—"Randolph Morgan Montgomery Alfred Van Christopher McGoof."

Minister (to assistant)—"A little more water, please."

* * *

"Well, doctor, was my operation a success?"

"I'm not your doctor. I'm St. Peter."

* * *

Just trying to make conversation with an old-timer at a filling station out in an arid portion of Texas, a tourist commented: "Looks like rain."

"I sure hope so," sighed the old-timer. "Not for myself," he hastened to explain, "but for the boy here. I've seen rain."

* * *

The orator had been scoring points in his speech on labor. "I say, friend," he said, "that it is the working classes who have made this country what it is today."

"That's right," came an unexpected voice from the crowd, "Throw all the blame on the poor!"

* * *

At a high school dance, a youthful girl was trying to make conversation with her partner. "I think dancing makes a girl's feet larger, don't you?"

"Yes."

Trying again, she bashfully asked: "Don't you think swimming gives a girl awfully big shoulders?"

"Yeah."

After a long pause, her partner finally stated: "You must ride quite a bit, too."—*Acme Steel News*

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GREATER CAPACITY**

and will operate more efficiently
at less cost than other elevator cups.

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"CC" - "V"

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of your rye, barley, durum screenings
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HELP WANTED

SALES REPRESENTATIVE—If you have a good following in the grain, feed, or seed trade you can sell our line of processing, material handling and power transmission equipment, which includes cleaners, mixers, crushers, shellers, gravity separators, scales, treaters, truck hoists, hand trucks, conveyors, bucket elevators, speed reducers V belt and chain drives, motors, starters, etc. You send in the orders, we do the billing, carry the account and you receive the commission. We are interested in a representative for the following states: Ohio, Southern Indiana, Illinois and Wisconsin. Box 6-C-4 Grain Magazine, Board of Trade, Chicago 4, Ill.

SITUATIONS WANTED

Position as Grain Inspector, 25 years experience. Acquainted with elevator work and boat loading. Held USDA Inspectors' license for 10 years. References on request. Write Box W-5, Grain Magazine, Board of Trade, Chicago 4, Ill.

FOR SALE

FOR SALE—Elevator and Feed Mill—40,000 bushel cribbed grain Elevator in very good condition with modern feed mill attached. Located in county seat town of 8,000 pop. in heart of one of the best feed and grain territories in Iowa on the Ill. Central Railroad. This concern is doing nice business at present and has unlimited possibilities. Write Box B-12, Grain Magazine, Board of Trade, Chicago, 4, Ill.

FOR SALE — 2 good country elevators on G. M. & O. Railroad central Illinois, 115,000 bushels total storage, good condition. Good opportunity for right party. Write Box 6-D-7, Grain Magazine, Board of Trade, Chicago 4, Ill.

FOR SALE—TAG-HEPPENSTALL MOISTURE TESTERS — for immediate shipment. Also several used Steinlite Moisture Testers. Write or call Douglas L. Mains Company 408 South Eighth Street, Quincy, Ill.

Grain Elevator For Sale

1 1/4 million bushel capacity grain elevator in East Central Michigan. Complete. Modern equipment, one year old. On C. & O. and N.Y.C. tracks (in-transit). 24 acres adjoining land. Presently 60% full. Excellent opportunity for profitable elevation and storage. Price 45¢ per bushel.

**Call or write: Walter J. Murray,
Penobscot Bldg., Detroit, Mich.**

WANTED

Equipment Supply houses to sell nationally advertised screw conveyor and accessories; excellent delivery. **Write Box 6-D-6, Grain Magazine, Board of Trade, Chicago 4, Ill.**

CORN CUTTER and Grader—has motor—used very little. Write 1-A-16, Grain Magazine, Board of Trade, Chicago 4, Ill.

FOR SALE—Used molasses mixers and used California Pellet Mills. Wenger Mixer Co., Sabetha, Kansas

FEED MIXER—One-ton floor level feed; has motor good as new. Write 1-A-17, Grain Magazine, Board of Trade Bldg., Chicago 4, Ill.

FEED MIXER for sale, has motor, and a late machine. Need Space. Will sacrifice. Write 1-A-18, Grain Magazine, Board of Trade Bldg., Chicago 4, Ill.

FOR SALE — New No. 0-12 Western Roller Screen Corn Cleaner. Write Graham Grain Company, 221 S. Fourth Street, Terre Haute, Indiana.

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FOR SALE — Large Anglo molasses mixer with 50 HP motor. One small Anglo molasses mixer. One large California pellet mill. One Haines molasses mixer. One Sizer Hi-Molasses pellet mill. Box Y-2, Grain Magazine, Board of Trade, Chicago 4, Ill.

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FOR SALE — Grain Elevator in corn belt area in Northwest Indiana. The property is being offered for the unbelievably low price of \$14,500 (half cash) due to ill health of the owner-manager. For full particulars, write Box V-12, Grain Magazine, Board of Trade, Chicago 4, Ill.

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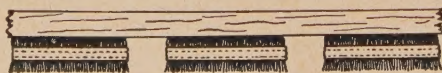


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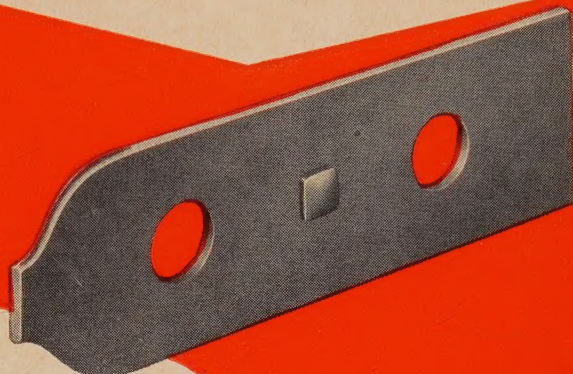
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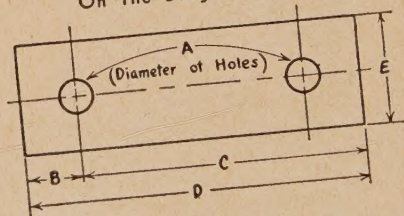


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(B) _____ inches
(C) _____ inches
(D) _____ inches
(E) _____ inches
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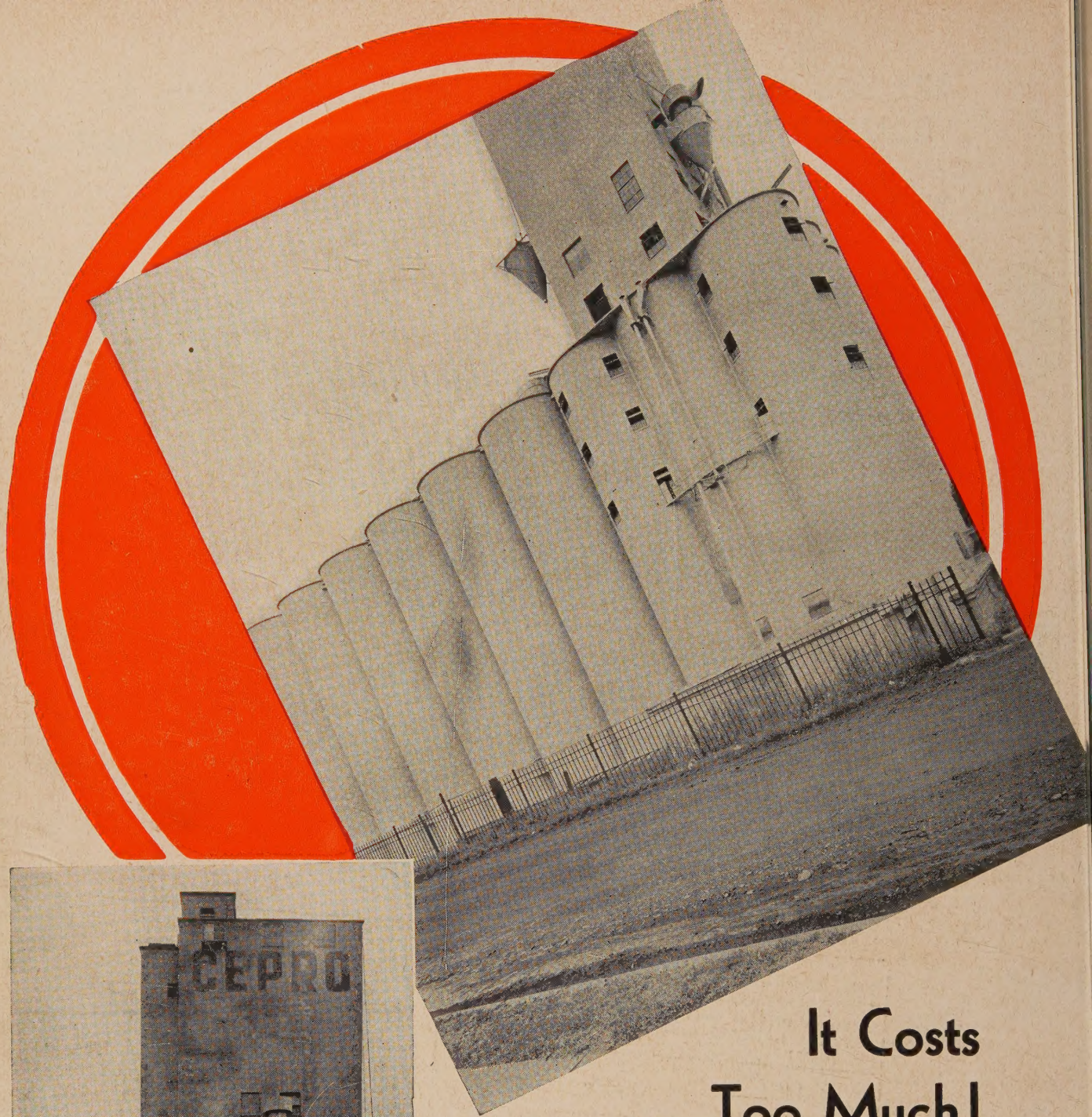
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